

REMARKS

Status of the Claims

Claims 1, 2, 4-18, 20, 22 and 25-34 are currently pending in the application. Claims 1, 2 and 4-36 stand rejected. Claims 1, 4, 20, 22 and 25 have been amended without prejudice or disclaimer. No new matter has been added by way of the present amendments. Specifically, the amendment to claim 1 is supported by the specification at, for instance, page 15, line 11 to line 13. Reconsideration is respectfully requested.

Request for Continued Examination

Applicants submit herewith a Request for Continued Examination under 37 C.F.R. § 1.114. The Examiner indicates in the Advisory Action of April 8, 2008 that Applicants' Amendment of February 29, 2008 has been entered into the record. The Examiner is respectfully requested to also enter the present amendments to the claims and consider the following additional remarks. Applicants believe that the presently submitted response places all pending claims in condition for allowance.

Rejections Under the Obviousness-Type Double Patenting Doctrine

Claims 1, 2, 4-18, 20, 22 and 25-34 remain provisionally rejected under the judicially created doctrine against obviousness-type double patenting. (*See*, Office Action of October 31, 2007, at page 4, hereinafter, "Office Action").

However, the Examiner is again respectfully requested to follow the procedure that is described in M.P.E.P. § 804(I)(B)(1), and reads as follows:

If a "provisional" nonstatutory obviousness-type double patenting (ODP) rejection is the only rejection remaining in the earlier filed of the two pending applications, while the later-filed application is rejectable on other grounds, the examiner should withdraw that rejection and permit the earlier-filed application to issue as a patent without a terminal disclaimer. If the ODP rejection is the only rejection remaining in the later-filed application, while the earlier-filed application is rejectable on other grounds, a terminal disclaimer must be required in the later-filed application before the rejection can be withdrawn.

If "provisional" ODP rejections in two applications are the only rejections remaining in those applications, the examiner should withdraw the ODP rejection in the earlier filed application thereby permitting that application to issue without need of a terminal disclaimer. A terminal disclaimer must be required in the later-filed application before the ODP rejection can be withdrawn and the application permitted to issue. If both applications are filed on the same day, the examiner should determine which application claims the base invention and which application claims the improvement (added limitations). The ODP rejection in the base application can be withdrawn without a terminal disclaimer, while the ODP rejection in the improvement application cannot be withdrawn without a terminal disclaimer.

Accordingly, as to the later filed U.S. Patent Application Serial No. 10/974,681, the Examiner is respectfully requested to issue a Notice of Allowance in this case and to address any possible double patenting issues in the co-pending applications.

Concerning the co-pending applications that are earlier filed, since claim amendments are presently entered for claim 1 and are being made in one or more of the cited co-pending applications which would render the rejection moot, Applicants believe none of the presently pending claims are obvious and all are patentably distinct from the cited co-pending applications.

Rejections Under 35 U.S.C. § 103(a)

Claims 1, 2, 4-14, 18-31, 33 and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable as obvious over Su, WO 97/08547 (hereinafter, "Su I"), in light of Su, U.S. Patent No. 5,804,684 (hereinafter, "Su II") and further in view of Kappel et al., U.S. Patent Application Publication No. 20040259162 (hereinafter, "Kappel et al."). (*See*, Office Action, at pages 5-10).

Claims 14-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable as obvious over Su I in view of Su II, and further in view of Kappel et al. and further in view of Seto et al., U.S. Patent Application Publication No. 20050045538 (hereinafter, "Seto et al."). (*See, Id.*, at pages 10-11).

Claim 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable as obvious over SuI, Su II, Kappel et al. and Natrajan et al., U.S. Patent Application Publication No. 2002/0076823 (*See, Id.* at page 11).

Applicants traverse the rejection.

Although Applicants do not agree that claim 1 is obvious in light of the cited references, claim 1 has been amended to recite, in part, "wherein the antifoaming agent is an alcohol-type antifoaming agent selected from at least one of the group consisting of: acetylene glycol, heptanol, ethylhexanol and higher alcohols ..." This amendment is supported by the specification at, for instance, page 15, lines 11-13.

None of the cited references disclose this feature of the presently claimed invention. Thus, the Examiner has failed to establish a *prima facie* case of obviousness with respect to at least amended claim 1, and those claims depending therefrom.

Furthermore, Applicants believe that the Examiner continues to misunderstand or mischaracterize the disclosure of Su I. That is, despite clear evidence to the contrary, the Examiner continues to believe that Su I disclose a solid matrix with particles having a pore size of 5 to 500 micrometers. (See, Advisory Action of April 8, 2008, at page 2, hereinafter, "Advisory Action"). The Examiner has clearly misinterpreted the disclosure of Su I, as previously explained in Applicants' Amendment of February 29, 2008.

That is, Su I only discloses the diameter of solid particles at page 19, lines 14-19. Although Su I may disclose the total diameter of the solid particle, Su I do not disclose or suggest the diameter or size of the pores in a membrane, as presently claimed. These are clearly two different concepts: the diameter of a particle and the diameter of the pores (or holes) within a membrane. Applicants believe that the Examiner is mistakenly equating these two different concepts. Thus, Su I do not disclose or suggest a "pore diameter" of between 0.1 and 10 μm .

The disclosure in Su II to which the Examiner refers concerns the pore diameter of a membrane used to filter the material which will eventually become the DNA-bindingcellulose matrix of Su II. This pore diameter in Su II does not refer to the cellulose matrix itself. That is, Su II, at column 10, lines 19-21, provide the following (*emphasis added*):

Filter paper consisting essentially of cellulose (0.25 g of Whatman 3 MM paper) is cut into $< 4 \text{ mm}^2$ pieces and suspended in about 10 ml of matrix solution, followed by vigorous vortexing until the paper becomes fibrous. The suspension is filtered through a membrane with 0.45 micron pores to remove liquid and the fibers are recovered from the filter. The wet fibers are then subjected to the procedure of cutting-vortexing-filtration twice so that all cellulose fibers are dissociated. The fibrous matrix thus formed is stored in either 50 ml matrix solution or 50 ml washing solution at room temperature (5 mg/ml). When stored in this manner, the fiber suspension is free to pass through a pipet with 2 mm opening. The volume that the 0.25 g matrix occupies after settling is equivalent to 10 ml-12.5 ml.

This paragraph (above) describes how the cellulose (or fibrous matrix) is prepared from filter paper. Briefly, the filter paper is cut up, suspended in matrix solution, vortexed until fibrous, and then filtered "to remove liquid" from the fibers so that the fibers may be recovered. That is, this filtration step utilizes a filter of 0.45 μm . However, this pore diameter refers to the filter which is used to prepare the fibers which are the DNA-binding cellulose matrix, not the DNA-binding cellulose matrix itself. Thus, Applicants believe the Examiner is again misconstruing and/or misunderstanding the disclosure cited. This section of Su II does not disclose or suggest the pore diameter of the DNA-binding cellulose matrix itself, but rather only discloses the pore diameter of a filtering apparatus utilized to prepare the matrix. This pore diameter is completely unrelated to the pore diameter of the DNA-binding cellulose matrix of Su II and does not in any way contribute to nucleic acid extraction efficiency because this filter never touches and is never exposed to nucleic acid solutions.

Similarly, the disclosure of Nargessi et al., WO 02/066993, upon which the Examiner relies for evidence of pore diameters, also do not disclose any pore diameters. The disclosure of Nargessi et al. does anywhere disclose or suggest or make any reference to pore diameters. Nargessi et al. refer to Hawkins, U.S. Patent No. 5,898,071, which at column 4, lines 9-19 again only disclose particles whose total diameter is 1 μm to 10 μm , as follows (*emphasis added*):

Magnetic microparticles useful in the present method can be a variety of shapes, which can be regular or irregular; preferably the shape maximizes the surface areas of the microparticles. The magnetic microparticles should be of such a size that their separation from solution, for example by filtration or magnetic separation, is not difficult. In addition, the magnetic microparticles should not be so large that surface area is minimized or that they are not suitable for microscale operations. Suitable sizes range from about 0.1 μm mean diameter to about 10 μm mean diameter. A preferred size is about 1.0 μm mean diameter.

Again, there is absolutely no mention anywhere within the four corners of either Nargessi et al. or Hawkins of the concept of pore diameter. These disclosures only refer to total diameters of solid particles. There is a difference between the concept of total diameter of a particle and the diameter of pores located in the three-dimensional structure of a membrane. Applicants believe the Examiner is improperly equating the total diameter of a particle with that of the holes or pores found within a single particle. Obviously, the size of a pore or hole in a membrane as presently claimed is not in any way related to the size of a solid particle as disclosed in the cited references. The only similarity is that they are similar in magnitude, but the reported magnitudes relate to two completely different things.

Nowhere in any of these cited references is there any suggestion, disclosure or indication of the diameter of pores located in a membrane which is utilized in the isolation and purification of DNA, as recited in the present claims. The Examiner's references are missing at least one of the positively recited features of the presently claimed invention. Therefore the Examiner has clearly failed to support a *prima facie* case of obviousness no matter how the disclosures of the cited references are combined.

Thus, reconsideration and withdrawal of the obviousness rejection of claims 1, 2, 4-14 and 18-34 are respectfully requested.

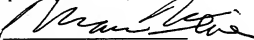
CONCLUSION

If the Examiner has any questions or comments, please contact Thomas J. Siepmann, Ph.D., Registration No 57,374, at the offices of Birch, Stewart, Kolasch & Birch, LLP.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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